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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

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Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

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J. Todd [illegible]

Director of the United States Patent and Trademark Office

Sandra L. Morton

US006093236A

United States Patent [19]

Klabunde et al.

[11] Patent Number: 6,093,236

[45] Date of Patent: Jul. 25, 2000

[54] **POROUS PELLET ADSORBENTS FABRICATED FROM NANOCRYSTALS**

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[21] Appl. No.: **09/093,249**

[22] Filed: **Jun. 8, 1998**

Related U.S. Application Data

[63] Continuation-in-part of application No. 09/087,657, May 30, 1998, abandoned.

[51] **Int. Cl.**[7] **D01D 59/26**

[52] **U.S. Cl.** **95/128**; 95/133; 95/135; 95/143; 502/400; 502/414; 423/604; 423/605; 423/608; 423/610; 423/622; 423/628; 423/629; 423/632; 423/633; 423/635

[58] **Field of Search** ..... 502/405, 406, 502/407, 415, 324, 325, 328, 329, 331, 335, 336, 338, 337, 340, 343, 345, 350; 264/109, 319, DIG. 25; 423/604, 605, 608, 610, 622, 628, 629, 632, 633, 635

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[57] **ABSTRACT**

Pelletized adsorbent compositions and methods of adsorbing toxic target compounds are provided for the destructive adsorption or chemisorption of toxic or undesired compounds. The pelletized adsorbents are formed by pressing together powder nanocrystalline particles comprising a metal hydroxide or a metal oxide at pressures of from about 50 psi to about 6000 psi to form discrete self-sustaining bodies. The pelletized bodies should retain at least about 25% of the surface area/unit mass and total pore volume of the starting metal particles.

13 Claims, 8 Drawing Sheets